



Application Number

SEARCH

IDS Flag Clearance for Application

10708567

IDS Information

Content	Mailroom Date	Entry Number	IDS Review	Reviewer
EIDS.	03-16-2004	9	<input checked="" type="checkbox"/>	06-17-2004 14:23:44 rgraden

UPDATE

7/3,AB/1 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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011624282

WPI Acc No: 1998-041410/199804

XRPX Acc No: N98-033208

**RF** coil system for use with open **magnetic resonance**

magnet - has each of coil components fitted with number of closed  
conductive loops each of which consists of inner and outer conductive arc  
segments

Patent Assignee: GENERAL ELECTRIC CO (GENE )

Inventor: **BOSKAMP E B**

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5696449	A	19971209	US 96659109	A	19960603	199804 B

Priority Applications (No Type Date): US 96659109 A 19960603

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5696449	A	11	G01V-003/00	

Abstract (Basic): US 5696449 A

The system includes first and second **RF** coil components  
(10a,b) positioned on opposing sides of an imaging space (20). Each of  
the coil components has a number of closed conductive loops. The latter  
of each of the **RF** coil has inner and outer conductive arc  
segments. The inner (12a) and outer (12b) arc segments lie along common  
inner and outer circular paths respectively.

A device is used for energising the closed loops of the first and  
second **RF** coil components to generate respective corresponding  
first and second **magnetic fields**. The latter collectively  
provide a resultant field comprising a **circular polarised**  
field component in a plane intersecting the imaging space and parallel  
to planes respectively containing the inner and outer circular paths.

USE - In **magnetic resonance imaging**.

ADVANTAGE - Provides improved homogeneity in combination with large  
field of view. Does not diminish accessibility or freedom of movement  
of patient with respect imaging space.

Dwg.1/8

10/3,AB/1 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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014761191

WPI Acc No: 2002-581895/200262

XRPX Acc No: N02-461348

**Radio frequency** coil system in **magnetic resonance imaging** system, has primary and spoiler coils that carry **RF** signal, such that signal in axial conductors of spoiler coil is out of phase than signal in primary coil

Patent Assignee: GE MEDICAL SYSTEMS GLOBAL TECHNOLOGY CO (GENE )

Inventor: **BOSKAMP E B**

Number of Countries: 004 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6404201	B1	20020611	US 2001681972	A	20010702	200262 B
JP 2003033333	A	20030204	JP 2002191597	A	20020701	200320
DE 10229445	A1	20030313	DE 10229445	A	20020701	200326
NL 1020979	C2	20041026	NL 20021020979	A	20020702	200505

Priority Applications (No Type Date): US 2001681972 A 20010702

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6404201	B1		12	G01V-003/00	
JP 2003033333	A		7	A61B-005/055	
DE 10229445	A1			G01R-033/3415	
NL 1020979	C2			G01R-033/34	

Abstract (Basic): US 6404201 B1

Abstract (Basic):

NOVELTY - The primary coil (50) and each pair of spoiler coils (52,54) include multiple axial conductors spaced to form a tubular structure and define the **coil volume**, such that each spoiler coil is positioned at the adjacent ends of the primary coil, respectively. The coils carry the **radio frequency (RF)** signal, such that the signal in the spoiler coils is 180degrees out of phase than the signal in primary coil.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for **radio frequency** coil apparatus.

USE - In **magnetic resonance imaging (MRI)** system and **nuclear magnetic resonance (NMR)** systems.

ADVANTAGE - The **RF** coils can effectively eliminate the aliasing artifacts by not exciting the spin system in the aliasing artifact region.

DESCRIPTION OF DRAWING(S) - The figure shows a schematic view of the receiver/transmitter coil system.

Primary coil (50)

Spoiler coils (52,54)

pp; 12 DwgNo 2/6

10/3,AB/2 (Item 2 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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011121690

WPI Acc No: 1997-099615/199709

Related WPI Acc No: 1994-356918

XRPX Acc No: N97-082416

**MRI** coil for angiographic studies of large vessels of legs and lower pelvis - has number of coils attached to base and sized to fit against table of **MRI** machine and cover opposed symmetrically to first coils about imaging volume, each having reception pattern

Patent Assignee: MEDICAL ADVANCES INC (MEDI-N)

Inventor: **BOSKAMP E B**

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5594337	A	19970114	US 9357939	A	19930507	199709 B
			US 94326556	A	19941020	

Priority Applications (No Type Date): US 94326556 A 19941020; US 9357939 A 19930507

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5594337	A	17	G01V-003/00		CIP of application US 9357939 CIP of patent US 5361765

Abstract (Basic): US 5594337 A

The coil includes a base sized to fit against a table of an **MRI** machine and extends along a longitudinal axis, a cover unit opposing the base and positionable above the base, together with the base to define an imaging volume between them, a number of first coils attached to the base and cover and having first reception patterns which couple to **RF magnetic fields** of a first orientation within the imaging volume to produce first signals, and a number of second coils attached to the base and cover and opposed symmetrically to the first coils about the imaging volume.

The second coils have at least one diametric conductor to divide each second coil into a pair of loops, and have second reception patterns which couple to **RF magnetic fields** of second orientation within the imaging volume to produce second signals. The second orientation has an angular sepn. from the first orientation of 90deg.. Multiple first and second coils alternated along the longitudinal axis are used to span the length of the elongate imaging area of the legs and a pre-amplifier network is employed to limit the inductance between other coil and to provide for piecewise imaging of the entire leg and pelvis region.

ADVANTAGE - Provides easy access by patient.

Dwg.1/22

10/3,AB/3 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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010097915

WPI Acc No: 1994-365628/199445

XRPX Acc No: N94-286353

Breast coil for **magnetic resonance imaging** - has two generally cylindrical coils isolated from each other by **radio frequency** shield and comprising multiple loops displaced along axis of cylinder and connected in parallel to provide uniform coverage of volume

Patent Assignee: MEDICAL ADVANCES INC (MEDI-N)

Inventor: **BOSKAMP E B**; CHOWDHURY S

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5363845	A	19941115	US 93106294	A	19930813	199445 B

Priority Applications (No Type Date): US 93106294 A 19930813

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5363845	A		10	A61B-005/055	

Abstract (Basic): US 5363845 A

The **MRI radio frequency** coil suitable for imaging a first and second human breast includes a first and second coil form defining adjacent volumes disposed and sized for receiving, respectively, the first and second breast through open first ends of the first and second coil forms. A first and second coil is attached to the first and second coil forms, respectively, so as to receive a first and second **RF** signal from the volumes of the first and second coil forms.

A **radio frequency** shield is positioned between the first and second coil to limit the sensitivity of the first coil to the second **RF** signal in the second volume and to limit the sensitivity of the second coil to the first **RF** signal in the first volume. A third coil surrounds the first and second coil forms so as to receive the combined first and second **RF** signal from the volumes of the first and second coil forms, respectively.

USE/ADVANTAGE - Imaging two human breasts in **MRI** equipment. Reduces interaction between coils by detuning coil not in use during unilateral operation.

Dwg.6/7

10/3,AB/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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010089205

WPI Acc No: 1994-356918/199444

Related WPI Acc No: 1997-099615

XRPX Acc No: N94-279692

Two-part quadrature **NMR** coil for medical use - includes bifurcated loop on one side of patient sensitive to be **RF** flux and second **RF** flux-sensitive loop on other side

Patent Assignee: MEDICAL ADVANCES INC (MEDI-N)

Inventor: **BOSKAMP E B**; HERLIHY D J

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5361765	A	19941108	US 9357939	A	19930507	199444 B

Priority Applications (No Type Date): US 9357939 A 19930507

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5361765	A		10	A61B-005/055	

Abstract (Basic): US 5361765 A

The probe comprises a first coil positioned adjacent to the imaging volume and having a first reception pattern which couples to a **RF**

**magnetic field** of a first orientation within the imaging volume to produce a first signal. A second coil is opposed symmetrically to the first coil about the imaging **volume**. The second **coil** has at least one diametric conductor to divide the second coil into a pair of loops having a second reception pattern which couples to a **RF magnetic field** of a second orientation within the imaging volume to produce a second signal.

The second orientation has an angular separation from the first orientation of 90 degrees measured in the direction of the precession of the nuclei. A combiner receives the signals for combining the first signal and the second signal. The second signal is shifted by 90 deg. w.r.t. the first signal.

USE - **NMR** probe for obtaining a signal from precessing nuclei within an imaging volume.

Dwg.4/8

10/3,AB/5 (Item 1 from file: 347)  
DIALOG(R)File 347:JAPIO  
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07539495

#### **RF COIL FOR MAGNETIC RESONANCE IMAGING**

PUB. NO.: 2003-033333 [JP 2003033333 A]  
PUBLISHED: February 04, 2003 (20030204)  
INVENTOR(s): **BOSKAMP EDDY B**  
APPLICANT(s): GE MEDICAL SYSTEMS GLOBAL TECHNOLOGY CO LLC  
APPL. NO.: 2002-191597 [JP 2002191597]  
FILED: July 01, 2002 (20020701)  
PRIORITY: 01 681972 [US 2001681972], US (United States of America),  
July 02, 2001 (20010702)

#### **ABSTRACT**

**PROBLEM TO BE SOLVED:** To improve the linearity of a gradient **magnetic field** and the uniformity of a DC **magnetic field** in an **RF** transmitting coil.

**SOLUTION:** This **radio frequency(RF)** coil is provided with a main coil element (50), which forms an approximately cylindrical structure having two ends (56 and 58) and has a plurality of axial conductors at intervals so as to prescribe a **coil volume**, and a pair of first spoiler coils (52 and 54) which form approximately cylindrical structures, respectively, and are equipped with a plurality of axial conductors at intervals so as to prescribe the **coil volume**. Each of the spoiler coils (52 and 54) is arranged in such a manner as to overlap one end (56 or 58) of a main coil. Adaptation is made so that an **RF** signal can be carried in such a manner that the **RF** signals of the spoiler coils (52 and 54) are phase-shifted at an angle of 180 degrees with respect to the **RF** signal of the main coil; an **RF magnetic field**, which is generated by the main coil within areas of the ends (56 and 58), is markedly lowered; and the production of an aliasing artifact from the outside of an imaging area is reduced.

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22/3,AB/1 (Item 1 from file: 2)  
DIALOG(R)File 2:INSPEC  
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04040185 INSPEC Abstract Number: B9201-2140-009

Title: **RF coils for magnetic resonance imaging**

Author(s): Mehdizadeh, M.

Author Affiliation: Picker Int., Wilmington, DE, USA

Journal: R.F. Design vol.14, no.11 p.29-38

Publication Date: Oct. 1991 Country of Publication: USA

CODEN: RFDEG ISSN: 0163-321X

Language: English

Abstract: **Magnetic resonance imaging (MRI)** is the latest medical diagnostic method for non-invasive observation of the body's interior. Many disciplines within electro- technology are employed in **MRI**. They include electromagnetics, **RF**, digital and analog electronics, and computer hardware and software. The author introduces the **RF** technology employed in **MRI**, with a focus on **RF** probes (commonly known as coils). Among the components used in the **RF** system, the coil is one which is most non-conventional, with a key impact on the quality of the final image. **RF** coils in **MRI** evolved from probes used in **NMR** spectroscopy of chemical samples. The **RF** requirements of **MRI**, however, are vastly different; and new structures and design techniques for **MRI RF** coils were developed.

26/3,AB/1 (Item 1 from file: 155)  
DIALOG(R)File 155:MEDLINE(R)  
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12391454 PMID: 9702709

A 16-element phased-array head coil.  
Porter J R; Wright S M; Reykowski A  
Department of Electrical Engineering, Texas A&M University, College  
Station, USA.

Magnetic resonance in medicine - official journal of the Society of  
Magnetic Resonance in Medicine / Society of Magnetic Resonance in Medicine  
(UNITED STATES) Aug 1998, 40 (2) p272-9, ISSN 0740-3194  
Journal Code: 8505245

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Volume-array coils offer increased signal-to-noise ratio  
(SNR) over standard volume coils near the array elements while  
preserving the SNR at the center of the volume. As the number of array  
elements is increased, the SNR advantage as well as the complexity of  
actually constructing the array increases also. In this study, a 16-channel  
receive-only array for imaging of the brain is demonstrated and compared to  
a circularly polarized (CP) head coil of similar shape and  
diameter. The array was formed from a 2 x 8 grid of square elements placed  
on a cylindrical form. Mutual coupling was minimized by a combination of  
overlapping element placement and current-reducing matching networks.  
Simultaneous data acquisition from the 16 individual elements was performed  
using a four-channel receiver system with each channel time domain  
multiplexed by a factor of 4. Theoretical and experimental comparisons  
between the array and a standard CP head coil show that the array offers an  
increase in SNR of nearly a factor of 3 near its surface while maintaining  
a comparable SNR to that of the CP head coil in the center of the region of  
interest.

26/3,AB/2 (Item 1 from file: 2)  
DIALOG(R)File 2:INSPEC  
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04040185 INSPEC Abstract Number: B9201-2140-009

Title: RF coils for magnetic resonance imaging

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diagnostic method for non-invasive observation of the body's interior. Many  
disciplines within electro- technology are employed in MRI. They include  
electromagnetics, RF, digital and analog electronics, and computer hardware  
and software. The author introduces the RF technology employed in MRI, with  
a focus on RF probes (commonly known as coils). Among the components used  
in the RF system, the coil is one which is most non-conventional, with a  
key impact on the quality of the final image. RF coils in MRI evolved from  
probes used in NMR spectroscopy of chemical samples. The RF requirements of  
MRI, however, are vastly different; and new structures and design  
techniques for MRI RF coils were developed.



Subfile: B

30/3,AB/1 (Item 1 from file: 2)  
DIALOG(R)File 2:INSPEC  
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04040185 INSPEC Abstract Number: B9201-2140-009

Title: **RF** coils for magnetic resonance imaging

Author(s): Mehdizadeh, M.

Author Affiliation: Picker Int., Wilmington, DE, USA

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Subfile: B

32/3,AB/1 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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014833790

WPI Acc No: 2002-654496/200270

XRPX Acc No: N02-517045

**Circularly polarized** notch antenna for military aircraft, has  
non-planar conductive fins that are connected to opposite sides of  
polarizer

Patent Assignee: BOEING CO (BOEI )

Inventor: DAHLBERG S E

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6414645	B1	20020702	US 2001924695	A	20010808	200270 B

Priority Applications (No Type Date): US 2001924695 A 20010808

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6414645	B1	12	H01Q-013/10		

Abstract (Basic): US 6414645 B1

Abstract (Basic):

NOVELTY - The antenna has non-planar conductive fins (42,44)  
connected to opposite sides of a polarizer (40). A coaxial cable (48)  
passing through the polarizer and connected to the fins, connects the  
antenna to an external device.

USE - Antenna for land based vehicle, commercial or military air  
craft, ship, spacecraft, etc. For receiving and transmitting one of  
vertically, horizontally and **circularly polarized**  
**radio frequency** signals.

ADVANTAGE - The arrangement of the fins and the polarizer enables  
reception and transmission of **circularly polarized RF**  
signals efficiently while maintaining minimum radar cross section (RCS)  
to preserve stealth or undetectibility of the air craft and reducing  
group complexity by eliminating external phase shift network and  
**multiple feed cables/lines**.

DESCRIPTION OF DRAWING(S) - The figure shows a perspective view of  
the **circularly polarized** notch antenna.

Polarizer (40)

Conductive fins (42,44)

Coaxial cable (48)

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